CFIT-Flex™ Standard Universal Enclosures
General Description and Installation

Figure 1   Standard CFIT Flex Enclosure

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides general information for the Charles Industries' CFIT-Flex™ Standard enclosures.

1.2. Product Purpose

The CFIT- Flex™ Standard line of flexible, indoor/outdoor non-metallic enclosures accommodate a wide **variety** of multiple fiber, copper or coaxial distribution applications, including fiber demarcation/distribution, hub applications (PON), fiber splice storage, hybrid power protection and fiber and media converter equipment for cell sites, multi-dwelling units (MDUs), Fiber-to-the-Antenna (FTTA), Fiber-to-the-Business (FTTB), campuses, malls, cell sites, etc. With a universal backplane and interchangeable feed and drop cable port plates, CFIT Flex enclosures can meet FTTX deployment challenges regardless of splicing technique, fiber type or the use of pre-connectorized cable.

1.3. Product Mounting and Location

The CFIT-Flex™ enclosures can be mounted on a wall or pole. There are four pole/wall-mount tabs at the top, sides and bottom of the enclosures. Four "drill through" holes, two at the top and two at the bottom corners, on the inside of the enclosure accommodate pole-mount kits, wall-mount accessories, etc. If the CFIT was purchased with no port plates installed, then order and install the Charles port plates during the CFIT mounting procedure. See the CFIT datasheet for a list of the port plate part numbers.

2. PRODUCT DESCRIPTION

The CFIT- Flex™ is an enclosure that is designed to be configured to the unique requirements of any fiber optic, copper or coaxial distribution point of up to 72 subscribers. An optional 64 fiber hub (SC) configuration for two 1x32 splitter modules with 12 shuttered feed adapters is also available. Features include:

- Constructed of lightweight and rugged polycarbonate for long-life during indoor or outdoor use
- Pole/wall-mountable with four external mounting posts
- Four internal corner drill-out holes for wall mounting or mating to other accessories
- Molded-in wall/pole-mount brackets for mounting to wood, masonry or drywall
- Optional inner security door
- Three 216-tool lock points and pad-lock hasp for enhanced security
- Four interchangeable, removable bottom "feed and drop" cable port plates with screw lock security. Variable entry grommets maximize in/out flexibility while maintaining environmental protection integrity
- Universal backplane provides ultimate flexibility to accommodates a broad range of fiber, copper or coaxial applications
- An optional fixed bulkhead can accommodate up to 72 fiber distribution (SC) or 64 fiber hub (SC) for two 1x32 splitter modules with 12 shuttered feed adapters
- Fiber parking lot for up to five connector blocks (40 total SC fibers)
- Up to seven small hinged splice trays can be installed on either side of the bulkhead
- Accommodates various connector/adapter types: SC, LC and MPO
- Four main top cable entry/exit drill-out ports
- 24 top and 12 bottom micro duct drill-out ports
- Four internal hinged snap-pin locations to mount a partition/security door or swinging bulkhead
- Loop-through or express capability

2.1. Applications and Configurations

1. Standard 48/72 fiber distribution with feed splice basket , trays, and cable management
2. 64 fiber hub with splitter holder (accommodates two splitters) and cable management. Note angled splitter holder accommodates two splitters and cable management for ease of access and routing of input and output legs.
3. Dual-side splice enclosure accommodates up to seven trays per side (12 splices per tray recommended/24 splice capacity total)
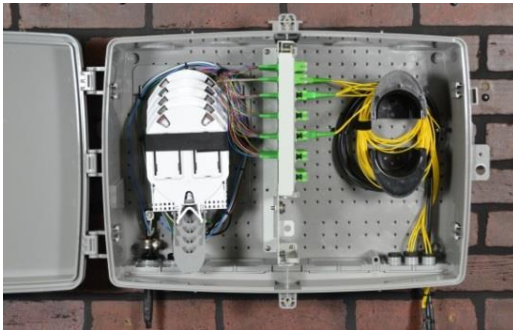
Standard 48/72 Fiber Distribution with Feed splice Basket and Trays, and Drop Cable Management with Optional Security Door
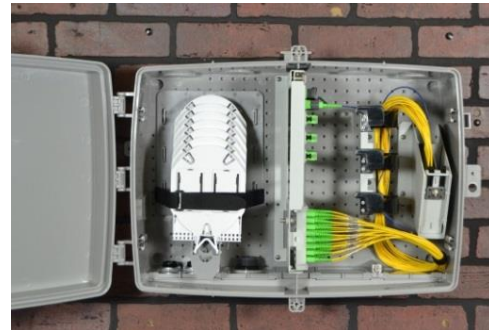
64 Fiber Hub with Splitter Holder (accommodates two splitters) and Cable Management
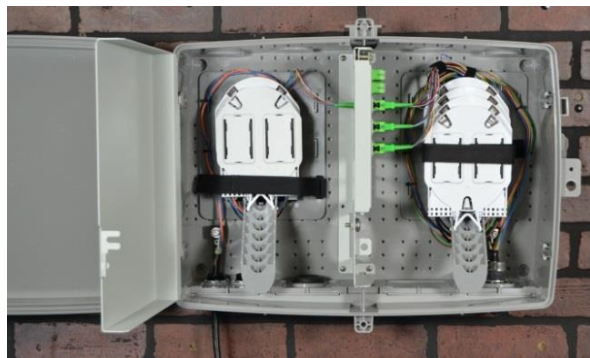
Dual-Side Splice Enclosure Accommodates up to 7 Trays Per Side (12 splices per tray recommended / 24 splice capacity total)

3. SAFETY PRECAUTIONS

— WARNING—

Risk of serious eye damage! Never look into the end of a fiber optic line or use a magnifier in the presence of laser light or radiation. Exercise caution when installing, testing or maintaining live circuits. If eyes are exposed to laser light or radiation occurs, immediately seek treatment by a medical professional.

— WARNING —

Cable and fiber cleaning solvents may contain hazardous or harmful materials. Maintain good housekeeping practices and refer to the SDS when working with cleaning solvents or similar products.

Shards and cleaved glass fibers are very sharp and can easily pierce the skin. Use industry standard procedures to pick up and store cut glass fibers in appropriate container. Do not consume any food products near the cable installation site.

Corrugated metal or armor in feed cables is very sharp when cut or exposed. Exercise extreme caution to prevent personal injury. Use protective work gloves when handling armored cable.

Do not damage any buried cables or service wires when digging to expose cables or to prepare a hole or trench, or when driving stakes.
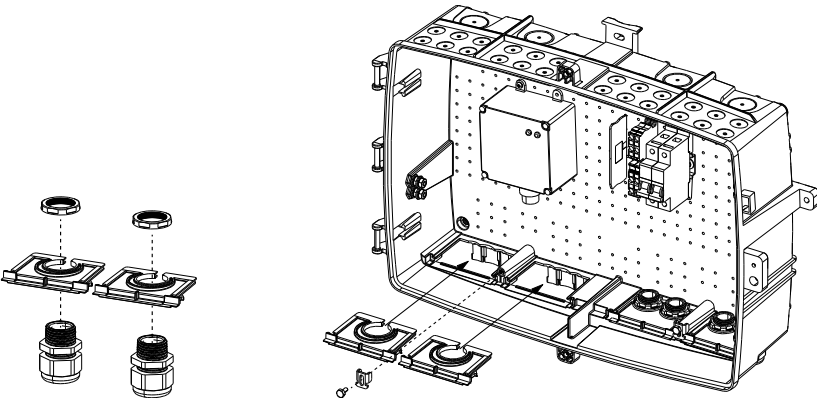
Buffer tubes and fibers are sensitive to excessive bending, pulling, and crushing forces. To avoid kinking the buffer tubes and fiber damage or breakage, exercise great care when working with fiber, and do not exceed/violate minimum bend radius requirements for fibers, buffer tubes, and cables.

Risk of injury! Always point, push, or press away from your body when stripping, cutting, shaving or scoring cables and tubing.

— CAUTION —

Perform all bonding and grounding prior to making any electrical and communications connections.

4. INSTALLATION

Section 1	Tools and Equipment Required

• 216-tool/can wrench • Hose clamps (2 provided) • Level • Double-sided Velcro tape • Grounding equipment and tools • Included hardware	• Knife or snips (to cut grommets) • Tape measure • Cable bond clamps (optional) • Marker pen • Wall-mounting hardware • Safety glasses & work gloves

If the CFIT was ordered with no port plates installed, then install the port plates (purchased separately) prior to mounting the CFIT.
 	
    • If the port plates have cord grip or grommet type fittings, remove and set aside the fittings.
    • Remove the screw that holds the retainer bracket in place. Set aside the screw and retainer bracket.
    • Slide two port plates into the opening on the bottom of the CFIT as shown.
    • Replace the screw and retainer bracket to hold the port plates in place.
    • If a fitting was removed prior to installation, replace the fitting.	

Section 2	Preparing and Opening the Enclosure

1. Inspect the enclosure thoroughly upon delivery. If any damage to the equipment has occurred, immediately notify the transportation company. 2. Use a 216-tool or can wrench, turn the three bolts (top, side and bottom) counterclockwise (CCW) to loosen the bolts 3. Push in on the tab above the side latch bolt to release and open the door.	 **Figure 1** **Opening Outer Door** **Figure 2** **Push in on Tab to Open Door**
4. (Optional) For indoor applications, before mounting the enclosure, drill and remove appropriate top cable entrance ports for cable access.	 **Figure 3** **Top Cable Entrance Ports**

Section 3	Mounting and Grounding the Enclosure

1. Mount the enclosure per company practice. The mounting hardware and surface must support the weight of the enclosure and all contents. CFIT-Flex™ mounting brackets are designed for wall or pole-mount applications.

- When mounting to a wall, hold the enclosure into mounting position on the wall and install the mounting hardware through the mounting brackets and/or optional drill-through holes.

- When mounting to a pole, straps and/or bolts are used to attach the enclosure to the pole.

Figure 4
Wall-Mount Bracket

Figure 5
Drill-through Hole

2. The CFIT-Flex™ can accommodate a single or dual ground stud installation. Install an earth ground. If one is not present at the enclosure site and it is required, prepare it. Always perform grounding prior to cable attachment.

NOTE: Installation of the ground stud first requires drilling through the ground stud holes.
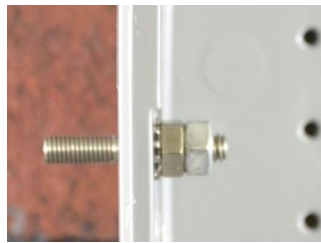

Figure 6
Single Ground Stud

Figure 7
Dual Ground Studs

Section 4	Optional Security Door

An optional security door can be ordered with the cabinet. To install or remove the door:

1. Attach the snap hinges onto the security door pins. Insert snap hinge into base slots until they snap into place.
2. Tighten security door bolt at bulkhead location.

NOTE: Security door lock hasp can accommodate a padlock.

Figure 8
Optional Security Door

Figure 9
Tightening Security Door Bolt (Padlock hasp shown below)

Figure 10
Completed Security Door Installation

Section 5	Installing the Feed Cable

(Optional) Port plates can be removed and are interchangeable with other available port plates (refer to Accessories Table). To remove the port plate, press in on the hooked tabs underneath the port plate and slide it out.

NOTE: Conduits and cord grips must be removed before sliding the port plate out.

Figure 11
Pressing on Tabs to Remove Port Plate

1. Attach the cable bracket to the backplane of the enclosure.

2. Prepare the port plate for cable installation. Route the feed cable through the port plate. Verify that approximately 6 feet of cable, measured from the cable port, is available. This length accommodates the minimum required for splicing operations.

3. Hold the cable against the bracket and make a mark or a cut line on the sheathing midway up the bracket. To provide slack, push the cable into the duct when marking the sheathing

4. Cut and remove the cable sheath from the mark to the cable end, exposing the central core tube and strength members or loose tubes and central strength member. Trim the cable strength member(s) approximately 4" longer than the cable sheath cut.

5. Trim the strength members to fit beneath the strength member clamp. Leave enough sheathing so that the hose clamp can secure the cable to the cable bracket.

NOTE: Illustrations are shown with splice basket removed for clarity.

Figure 12
Attaching Cable Bracket to Backplane

Figure 13
Marking Cut Line on Sheathing

Figure 14
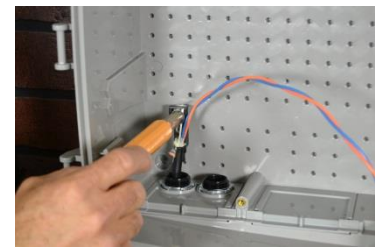**Removing Sheathing to Reveal Buffer Tubes**

Figure 15
Securing the Strength Member to Cable Bracket

6. Attach an approved cable bond clamp to the cable/shield at the sheath cut. Follow manufacturer's instructions or company practice when attaching cable bond clamp.

7. Secure the cable to the cable bracket with a hose clamp.

Figure 16
Cable Bond Clamp Attached

Figure 17
Attaching Hose Clamp

8. Route the buffer tubes on the left side of the fiber storage basket and into the top of the basket, securing it with a cable tie to the inside of the basket.

9. For ribbon, insert the ribbon fiber end into the transportation tube. As the ribbon fiber is pushed through the transportation tube, slide the tube so that it butts up to the central core tube. Secure the transportation tube to the basket using two cable ties.

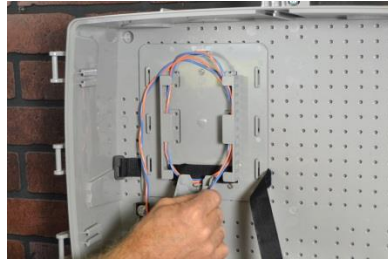NOTE: Splice trays and bulkhead removed for clarity.

Figure 18
Routing Buffer Tubes

10. Remove the splice tray cover and install two cable ties at the left rear corner of the tray using the tie-down slots. Repeat the process for the right rear corner.

Figure 19
Removing Splice Tray Cover

Figure 20
Installing Cable Ties in Left Corner of Splice Tray

Figure 21
Installing Cable Ties in Right Corner of Splice Tray

11. Position the tube so that it overlaps 1" past the edge of the tray and mark the tube to remove any excess length. Ring cut the tube at the mark and remove the excess.

Figure 22
Marking Tube

Figure 23
Cutting Tube

12. With the cut tube overlapping the tray corner about 1", bring the tube up, around, and then underneath the hinge to the opposite side. Secure the tube to the tray using the two cable ties at the corner.

CAUTION: Be sure to route the tube underneath the hinge to the opposite side of the splice tray to avoid kinking the tube.

13. Label the tubes per company practice.

Figure 24
Tubes Routed Underneath Hinge to Opposite Side

14. To reinstall the splice tray, orient the splice tray so the cover/top side faces up and the straight end faces the rear of the enclosure. To attach the tray to the bracket, align the hinge tabs with the holes in the bracket and snap it into place.
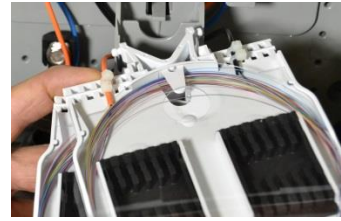

Figure 25
Attaching Trays to Bracket

15. Per company practice, wrap and store the fibers in the splice tray for later splicing.

16. To attach the tray cover, gently flex the cover so that it fits underneath the (5) small tray cover tabs as shown in Figure 25 and insert it into the splice tray.
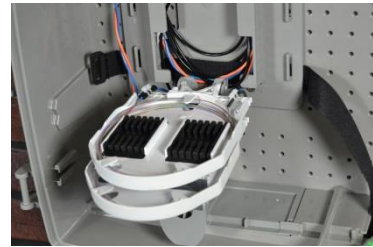
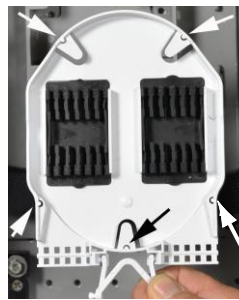

Figure 26
Fibers Stored in Splice Tray

Figure 27
**Splice Tray with Arrows Pointing to
Tray Cover Tabs**

Figure 28
Attaching Tray Cover

17. Swing the splice tray to the closed position and secure the tray using the Velcro strap.
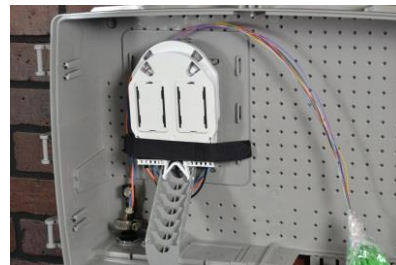
NOTE: Bulkhead removed for clarity.

Figure 29
Splice Trays in Closed Position

Section 6	Two-Position Bulkhead

<table>
<tr>
<td>
The two-position bulkhead provides easy access to the bulkhead adapters. The bulkhead pulls out approximately three inches to allow adequate room for connector installation. To slide out the bulkhead:

1   Pull out the spring-loaded pin on the upper portion of the bulkhead.

2   Slide the bulkhead out until it reaches a stopping point and locks into position.

3   To return the bulkhead to its original position, pull the pin and slide the bulkhead into the closed position.
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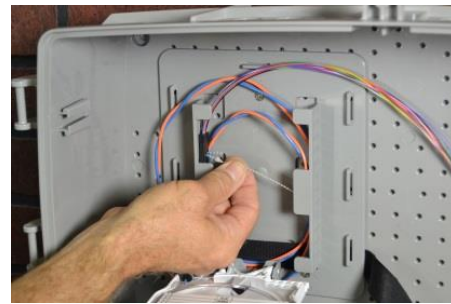**4.1.**

Figure 30
Releasing Pin

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Figure 31
Pulling Out or Pushing In Bulkhead

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</table>

| Section 7	Installing the Fanout Assembly

Overview – when a fanout or fanouts are used in conjunction with a cable stub, they extend from the fiber storage basket to the assigned bulkhead adapter. The fanout(s) is/are now in position for splicing.

<table>
<tr>
<td>
1.   Attach fanout to the left (feed) side of the basket using appropriate cable ties. The fanout is oriented so that the buffer tube is on the bottom and the 900 micron fibers are on the top.
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<td>

Figure32
Attaching Fanout to Bulkhead

</td>
</tr>
</table>

If splicing is done at this time, loosen the Velcro straps and remove the tray cover. Splice the assigned fibers and store them in the tray per company practice. Use the provided label to note spliced fibers and reattach the tray cover. Secure the tray to the basket using tray straps.
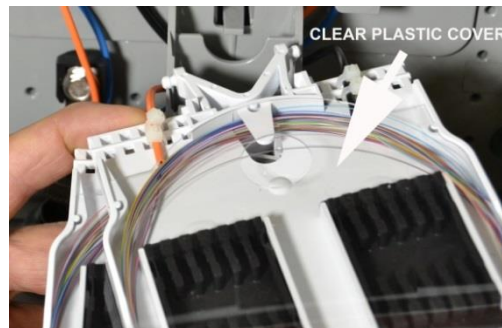
Figure 33
Removing Tray Cover

2. Route the fanout buffer tubes inside the basket one loop and then under the hinge (where the splice tray attaches to the bracket beneath the basket).

NOTE: Follow step 14 from Section 4 to remove the appropriate amount of fanout buffer tube.

3. The 900 micron fibers are routed from the basket to the assigned bulkhead adapter. Following standard color code, continue routing all 900 micron fibers to their corresponding bulkhead locations.
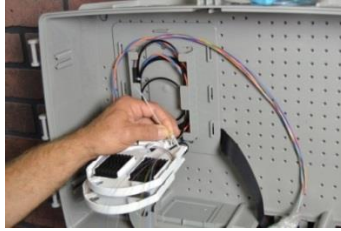

Figure 34
Attaching Fanout Buffer Tube to Tray

Figure 35
Completed Splice with Connectors Ready to Attach to Bulkhead

Figure 36
Routing and Attaching Fanout Connector

Figure 37
Fanout Connectors Installed in Bulkhead

Alternate Method of Routing 900 Micron Fibers to Adapters: The connectors can be attached to the bulkhead adapters, routed to the basket and spliced when required.
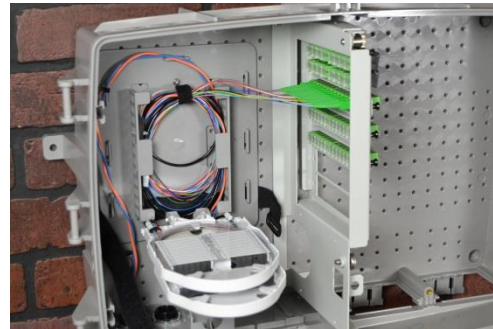

Figure 38
Alternate 900Micron Fiber Routing and Splicing Method

Section 8	Installing Preconnectorized Distribution Cables

1. Remove grommets from the enclosure port plate where drop cable access is required (Figure 39).

2. Cut the grommet(s) for jacketed pigtail installation (Figure 40).

3. Insert the jacketed pigtail into the grommet (Figure 41).

4. Install grommet with jacketed pigtail into port plate (Figure 42).

Figure 39
Removing Grommet from Port Plate

Figure 40
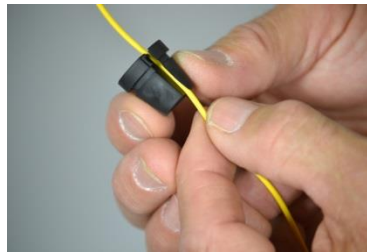**Cutting Grommet**

Figure 41
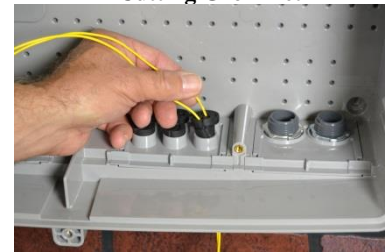**Inserting Jacketed Pigtail into Grommet**

Figure 42
Installing Grommet with Jacketed Pigtail into Port Plate

5. Route the drops around bend controls prior to installing connectors in the bulkhead.

6. Use the door label per company practice to document which distribution customers are connected.
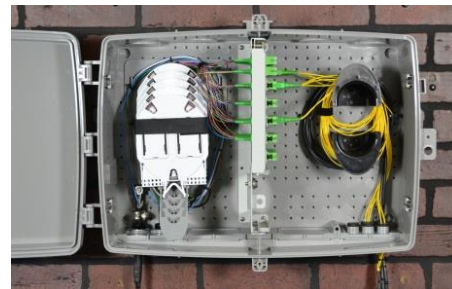

Figure 43
Drops Routed Around Bend Controls

Section 9   Installation of Hub Components (CFIT-FSHUBKIT01)

Refer to Figure 46 for recommended installation location.

1. Attach the splitter holder bracket using the hardware provided.
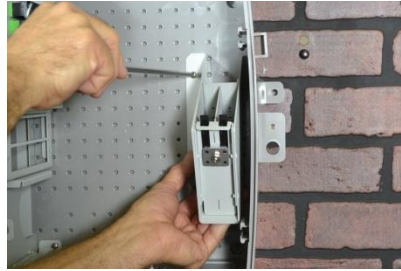2. Attach the cable management bracket using the hardware provided.

Figure 44
Installing Splitter Holder Bracket

Figure 45
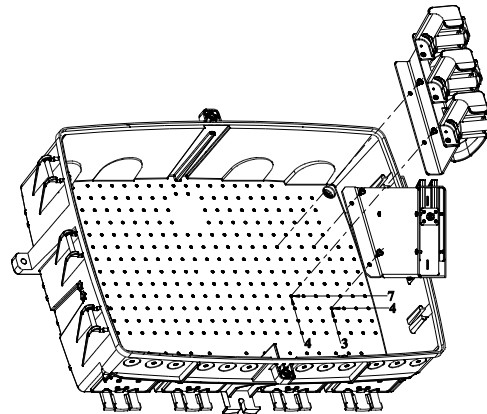**Installing Cable Management Bracket**

Figure 46
Mounting Hole Location Diagram

5. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

> 847-806-8500
> techserv@charlesindustries.com (email)
> http://www.charlesindustries.com/techserv.htm

6. CUSTOMER SERVICE

For customer service assistance, contact your Charles Customer Service Representative.

> 847-806-6300
> mktserv@charlesindustries.com (email)
> http://www.charlesindustries.com/main/telecom_sales_support.htm

7. SPECIFICATIONS

Model	Feature	U.S.	Metric
CFIT-Flex™ Standard	Height (enclosure only)	16 in.	42 cm
	Depth, base (front to back)	8 in.	20 cm
	Width	22 in.	56 cm
	Weight (empty enclosure only)	9 lbs.	4.08 Kg
	Construction	Rugged UL94-5VA Gray Polycarbonate	
	Supported Fiber Connector Types	SC, LC or MPO	
	Compliance	Designed to meet GR-950, GR2898, NEMA 4, IP66	

8. ACCESSORIES

Part Number	Description
CFSM-FM1132AA	Charles Fiber Splitter Module, 1x32, SC/APC
CFSM-FM1116AA	Charles Fiber Splitter Module, 1x16, SC/APC
CFSM-FM2116AA	Charles Fiber Splitter Module, Dual 1x16, SC/APC
CFSM-FM1108AA	Charles Fiber Splitter Module, 1x8, SC/APC
97-SCA12LF3M	12 Fiber SC/APC 900um Color-Coded Loose-Tube Bend Insensitive 3 Meter Fanout
97-SCA12RF3M	12 Fiber SC/APC 900um Color-Coded RIBBON Bend Insensitive 3 Meter Fanout
97-SCA08LF3M	8 Fiber SC/APC 900um Color-Coded Loose-Tube Bend Insensitive 3 Meter Fanout
97-SCA08RF3M	8 Fiber SC/APC 900um Color-Coded Loose-Tube Bend Insensitive 3 Meter Fanout
97-SMHTRAY	Charles Fiber Hinged Splice Tray, 24 Fiber Capacity - Small, 6" Length
CFIT-FSHUBKIT01	Hub Components